

**CLAIMS:**

1. A method for the preparation of a modified carrier for a catalyst to be used for the vapor phase epoxidation of alkene, comprising:

- 5       a) impregnating a preformed alpha-alumina carrier with at least one alkali metal hydroxide modifier ;  
      b) optionally drying said impregnated carrier;  
      c) calcining said impregnated and optionally dried carrier; and  
      d) washing said calcined carrier.

10   2. A method for the preparation of a catalyst to be used for the vapor phase epoxidation of alkene, comprising:

- a) impregnating a preformed alpha-alumina carrier with at least one alkali metal hydroxide modifier ;  
      b) optionally drying said impregnated carrier;  
      c) calcining said impregnated and optionally dried carrier;  
15       d) washing said calcined carrier; and  
      e) depositing silver catalytic material on said calcined carrier

3. The method of claim 1 or 2 wherein said calcining is carried out at a temperature of 800°C. to 1800°C..

20   4. The method of claim 1 or 2 wherein said alpha- alumina carrier has a morphology comprising interlocking platelets.

5. The method of claim 1 or 2 wherein said alpha-alumina carrier is prepared by contacting boehmite alumina and/or gamma-alumina with an acidic mixture containing halide anions and water.

25   6. The method of claim 1 or 2 wherein at least one efficiency enhancing promoter is deposited on said preformed alpha-alumina carrier.

7. The method of claim 6 wherein said promoter comprises a rhenium-containing compound.

8. The method of claim 7 wherein said alkene is ethylene.

30   9. The method of claim 1 or 2 wherein said alkali metal hydroxide is present in an amount from 0.01 to 5.0 weight percent, based on the total weight of the modified alumina carrier.

10. The method of claim 1 or 2 wherein said alkali metal hydroxide is sodium hydroxide.

35   11. A modified carrier for a catalyst to be used for the vapor phase epoxidation of alkene prepared by a method comprising:

- a) impregnating a preformed alpha-alumina carrier with at least one alkali metal hydroxide modifier ;
- b) optionally drying said impregnated carrier;
- c) calcining said impregnated and optionally dried carrier; and
- d) washing said calcined carrier.

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12. The modified carrier of claim wherein said alpha-alumina carrier has a morphology comprising interlocking platelets.

13. A novel catalyst to be used for the vapor phase epoxidation of alkene prepared by a method comprising:

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- a) impregnating a preformed alpha-alumina carrier with at least one alkali metal hydroxide modifier ;
- b) optionally drying said impregnated carrier;
- c) calcining said impregnated and optionally dried carrier;
- d) washing said calcined carrier; and

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- e) depositing silver catalytic material on said dried carrier

14. The catalyst of claim 13 wherein said alpha-alumina carrier has a morphology comprising interlocking platelets.

15. The catalyst of 13 wherein said alkali metal hydroxide is sodium hydroxide.